

Appl. No. 10/731,171

Attorney Docket: 042390.P17844

LISTING OF THE CLAIMS:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1: (Cancelled).

1 2: (Cancelled).

1 3: (Cancelled).

1 4: (Currently Amended) ~~The method of claim 1, further comprising:~~2 **A method comprising:**3 **associating a virtual machine with a processor utilizing a virtual machine identifier;**4 **receiving an interrupt;**5 **determining if the interrupt is associated with a virtual machine identifier that is**6 **associated with one or more processors; and**7 **if so, routing the interrupt to the matching processor(s); and**8 **wherein** if the interrupt is associated with a virtual machine identifier that is currently not

9 associated with one or more processors,

10 targeting a virtual machine not currently running on any processor; and

11 routing the interrupt to a processor running in shared mode and reported as executing the

12 lowest priority task.

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1 5: (Original) The method of claim 4, wherein associating a virtual machine with a processor
2 utilizing a virtual machine identifier includes:
3 receiving a communication from the processor that includes a virtual machine identifier;
4 and
5 storing a processor identifier and the virtual machine identifier in a participant table.

1 6: (Original) The method of claim 5, wherein receiving a communication from the processor
2 includes utilizing, at least in part, the VM-ID information to optimize system resources and
3 parameters.

1 7: (Original) The method of claim 5, wherein receiving a communication from the processor that
2 includes a virtual machine identifier occurs when the processor either initiates or resumes
3 execution of a virtual machine indicated by the virtual machine identifier.

1 8: (Original) The method of claim 7, wherein a virtual control block (VCB)
2 specifies a virtual machine identifier for each virtual machine, and
3 stores the virtual machine identifier in an executing processor utilizing a virtual machine
4 control block.

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1 9: (Original) The method of claim 5, wherein associating a virtual machine with a processor
2 utilizing a virtual machine identifier includes:
3 receiving a communication from the processor that includes information that denotes
4 whether or not the processor is running in shared or dedicated mode; and
5 storing the processor mode information in a participant table.

1 10: (Cancelled).

1 11: (Currently Amended) ~~The method of claim 1, further including:~~
2 **A method comprising:**
3 **associating a virtual machine with a processor utilizing a virtual machine identifier;**
4 **receiving an interrupt;**
5 **determining if the interrupt is associated with a virtual machine identifier that is**
6 **associated with one or more processors;**
7 **if so, routing the interrupt to the matching processor(s); and**
8 associating an interrupt generating device that is exclusively assigned to a virtual
9 machine with the virtual machine's identifier.

1 12: (Original) The method of claim 11, wherein associating an interrupt generating device
2 includes storing the virtual machine identifier in a memory element within the device so that any
3 interrupts generated by the device may include the virtual machine identifier.

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1 13: (Original) The method of claim 11, wherein associating an interrupt generating device
2 includes:
3 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from
4 the interrupt generating device, and
5 associating a virtual machine identifier with an input line of the interrupt controller; and
6 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt
7 input line are associated with the virtual machine identifier.

1 14: (Cancelled).

1 15: (Cancelled).

1 16: (Cancelled).

1 17: (Currently Amended) ~~The article of claim 14, further comprising instructions providing~~
2 ~~for:~~
3 An article comprising:
4 a machine accessible medium having a plurality of machine accessible instructions, wherein
5 when the instructions are executed, the instructions provide for:

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6 associating a virtual machine with a processor utilizing a virtual machine identifier;
7 receiving an interrupt;
8 determining if the interrupt is associated with a virtual machine identifier that is
9 associated with one or more processors; and
10 if so, routing the interrupt to the matching processor(s); and
11 wherein, if the interrupt is not associated with a virtual machine identifier that is currently
12 associated with one or more processors,
13 targeting a virtual machine not currently running on any processor; and
14 routing the interrupt to a processor running in shared mode and reported as executing the
15 lowest priority task.

1 18: (Original) The article of claim 17, wherein the instructions providing for associating a virtual
2 machine with a processor utilizing a virtual machine identifier includes instructions providing
3 for:
4 receiving a communication from the processor that includes a virtual machine identifier;
5 and
6 storing a processor identifier and the virtual machine identifier in a participant table.

1 19: (Original) The article of claim 18, wherein the instructions providing for receiving a
2 communication from the processor includes instructions providing for utilizing, at least in part,
3 the VM-ID information to optimize system resources and parameters.

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1 20: (Original) The article of claim 18, wherein the instructions providing for receiving a
2 communication from the processor that includes a virtual machine identifier occurs when the
3 processor either initiates or resumes execution of a virtual machine indicated by the virtual
4 machine identifier.

1 21: (Original) The article of claim 20, further including instructions providing for a virtual
2 control block (VCB)
3 specifying a virtual machine identifier for each virtual machine, and
4 storing the virtual machine identifier in an executing processor utilizing a virtual machine
5 control block.

1 22: (Original) The article of claim 18, wherein the instructions providing for associating a virtual
2 machine with a processor utilizing a virtual machine identifier includes instructions providing
3 for:
4 receiving a communication from the processor that includes information that denotes
5 whether or not the processor is running in shared or dedicated mode; and
6 storing the processor mode information in a participant table.

1 23: (Cancelled).

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1 24: (Currently Amended) ~~The article of claim 14, further including instructions providing~~
2 ~~for:~~
3 An article comprising:
4 a machine accessible medium having a plurality of machine accessible instructions, wherein
5 when the instructions are executed, the instructions provide for:
6 _____ associating a virtual machine with a processor utilizing a virtual machine identifier;
7 _____ receiving an interrupt;
8 _____ determining if the interrupt is associated with a virtual machine identifier that is
9 associated with one or more processors;
10 _____ if so, routing the interrupt to the matching processor(s); and
11 _____ associating an interrupt generating device that is exclusively assigned to a virtual
12 machine with the virtual machine's identifier.

1 25: (Original) The article of claim 24, wherein the instructions providing for associating an
2 interrupt generating device includes instructions providing for storing the virtual machine
3 identifier in a memory element within the device so that any interrupts generated by the device
4 may include the virtual machine identifier.

1 26: (Original) The article of claim 14, wherein the instructions providing for associating an
2 interrupt generating device includes instructions providing for:

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3 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from
4 the interrupt generating device, and
5 associating a virtual machine identifier with an input line of the interrupt controller; and
6 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt
7 input line are associated with the virtual machine identifier.

1 27: (Cancelled).

1 28: (Cancelled).

1 29: (Cancelled).

1 30: (Currently Amended) **An apparatus comprising:**

2 **a plurality of processors:**

3 **to execute a plurality of virtual machines having virtual machine identifiers,**

4 **and**

5 **wherein each processor is capable of communicating, to an integrated circuit,**

6 **the virtual machine identifier of the virtual machine that the processor is currently**

7 **executing; and**

8 **the integrated circuit to steer interrupts to the processor utilizing, at least in part,**

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9 the virtual machine interrupts; and

10 wherein the integrated circuit is capable of:

11 associating each processor with a virtual machine identifier, and the associations are

12 stored in a participant table, and

13 ~~_____ The apparatus of claim 29, wherein the integrated circuit is further capable of~~

14 determining whether each processor is running in shared or dedicated mode.

1 31: (Cancelled).

1 32: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual

3 machine identifiers; and

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the

5 virtual machine interrupts; and

6 ~~The apparatus of claim 31, wherein the integrated circuit is capable of:~~

7 ~~_____ utilizing, at least in part, the VM-ID information to optimize system resources and~~

8 ~~parameters;~~

9 ~~_____ receiving an interrupt;~~

10 ~~_____ determining if the interrupt is associated with a virtual machine identifier that is~~

11 ~~associated with one or more processors; and~~

12 ~~_____ if so, routing the interrupt to the matching processor(s).~~

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1 33: (Cancelled).

1 34: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
5 virtual machine interrupts;

6 ~~The apparatus of claim 33, further including~~

7 a virtual control block (VCB) that is capable of:

8 specifying a virtual machine identifier for each virtual machine, and

9 storing the virtual machine identifier in an executing processor utilizing a virtual
10 machine control block; and

11 wherein the integrated circuit is further capable of:

12 if the interrupt is not associated with a virtual machine identifier,

13 utilizing a virtual control block to steer the interrupt to the appropriate
14 processor.

1 35: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

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4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
5 virtual machine interrupts; and

6 ~~The apparatus of claim 33~~, wherein the integrated circuit is capable of:

7 if the interrupt is not associated with a virtual machine identifier,

8 utilizing a virtual control block to steer the interrupt to the appropriate processor;

9 and

10 if the interrupt is associated with a virtual machine identifier that is not currently associated with
11 one or more processors,

12 targeting a virtual machine not currently running on any processor; and

13 routing the interrupt to a processor running in shared mode reported as executing the

14 lowest priority task.

1 36: (Cancelled).

1 37: (Cancelled).

1 38: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
5 virtual machine interrupts; and

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6 ~~The apparatus of claim 28~~, wherein each processor is capable of:

7 communicating, to the integrated circuit, the virtual machine identifier of the virtual
8 machine that the processor is currently executing when the processor either initiates or resumes
9 execution of the virtual machine.

1 39: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
5 virtual machine interrupts; and

6 wherein each processor is capable of:

7 communicating, to the integrated circuit, the virtual machine identifier of the
8 virtual machine that the processor is currently executing; and

9 ~~The apparatus of claim 28~~, wherein the integrated circuit is capable of associating an interrupt
10 generating device by:

11 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from
12 the interrupt generating device, and

13 associating a virtual machine identifier with an input line of the interrupt controller; and
14 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt
15 input line are associated with the virtual machine identifier.

1 40: (Cancelled).

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1 41: (Cancelled).

1 42: (Cancelled).

1 43: (Currently Amended) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

4 at least one interrupt generating device to transmit an interrupt having a virtual
5 machine identifier; and

6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
7 virtual machine interrupts; and

8 ~~The system of claim 40,~~ wherein the integrated circuit is further capable of determining whether
9 each processor is running in shared or dedicated mode.

1 44: (Cancelled).

1 45: (Currently Amended) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;

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4 at least one interrupt generating device to transmit an interrupt having a virtual
5 machine identifier; and
6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
7 virtual machine interrupts; and
8 ~~The system of claim 44,~~ wherein the integrated circuit is capable of:
9 _____utilizing, at least in part, the VM-ID information to optimize system resources and
10 parameters;
11 _____receiving an interrupt;
12 _____determining if the interrupt is associated with a virtual machine identifier that is
13 associated with one or more processors; and
14 if so, routing the interrupt to the matching processor(s).

1 46: (Cancelled).

1 47: (Currently Amended) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual
3 machine identifiers;
4 at least one interrupt generating device to transmit an interrupt having a virtual
5 machine identifier;
6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the
7 virtual machine interrupts; and
8 ~~The system of claim 46, further including~~ a virtual control block (VCB) that is capable

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9 of:

10 specifying a virtual machine identifier for each virtual machine, and

11 storing the virtual machine identifier in an executing processor utilizing a virtual machine

12 control block; and13 wherein the integrated circuit is capable of:14 receiving an interrupt;15 determining if the interrupt is associated with a virtual machine identifier that is16 associated with one or more processors;17 if so, routing the interrupt to the matching processor(s); and18 if the interrupt is not associated with a virtual machine identifier, utilizing a virtual19 control block to steer the interrupt to the appropriate processor.1 48: (Currently Amended) A system comprising:2 a plurality of processors to execute a plurality of virtual machines having virtual3 machine identifiers;4 at least one interrupt generating device to transmit an interrupt having a virtual5 machine identifier;6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the7 virtual machine interrupts; and8 ~~The system of claim 46,~~ wherein the integrated circuit is capable of:9 if the interrupt is not associated with a virtual machine identifier,10 utilizing a virtual control block to steer the interrupt to the appropriate processor;11 if the interrupt is associated with a virtual machine identifier that is not currently associated with

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12 one or more processors,
13 targeting a virtual machine not currently running on any processor; and
14 routing the interrupt to a processor running in shared mode reported as executing the
15 lowest priority task.

1 49: (Cancelled).

1 50: (Cancelled).

1 51: (Cancelled).

1 52: (Currently Amended) **A system comprising:**
2 **a plurality of processors to execute a plurality of virtual machines having virtual**
3 **machine identifiers;**
4 **at least one interrupt generating device to transmit an interrupt having a virtual**
5 **machine identifier; and**
6 **an integrated circuit to steer interrupts to the processor utilizing, at least in part, the**
7 **virtual machine interrupts;**

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8 wherein each processor is capable of:

9 communicating, to the integrated circuit, the virtual machine identifier of the

10 virtual machine that the processor is currently executing; and

11 ~~The system of claim 41,~~ wherein the integrated circuit is capable of associating an interrupt
12 generating device by:

13 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from
14 the interrupt generating device, and

15 associating a virtual machine identifier with an input line of the interrupt controller; and

16 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt
17 input line are associated with the virtual machine identifier.